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### AMENDMENTS

IN THE CLAIMS: (for convenience, all of the pending claims are provided)

26. (Twice Amended) A purified and isolated nucleic acid sequence encoding a glial cell line-derived neurotrophic factor, wherein said nucleic acid sequence [selected from the group consisting of:]

- (a) comprises [sequences having] nucleotides 304 through 705 of SEQ ID NO:3 or nucleotides 105 through 506 of SEQ ID NO:5;
- (b) encodes [sequences which encode] a polypeptide comprising [having] an amino acid sequence set forth in SEQ ID NO:4 or SEQ ID NO:6;
- (c) encodes [sequences which encode] a polypeptide comprising an amino acid sequence which is at least 70% identical [homologous] to an amino acid sequence set forth in SEQ ID NO:4 or SEQ ID NO:6 when four gaps in a length of 100 amino acids may be introduced to assist in that alignment;
- (d) hybridizes under conditions of reduced stringency to a [sequences which hybridize to] nucleic acid sequence [sequences] complementary to those defined in (a), (b) or (c); or [and]
- (e) encodes a polypeptide encoded by a nucleic acid sequence defined in (a), (b), (c) or (d) but differs in codon sequence due to [sequences which, but for] the degeneracy of the genetic code [, would hybridize to a nucleic acid sequence complementary to a sequence defined in (a), (b), (c) or (d)];

wherein said encoded [encoding] glial cell line-derived neurotrophic factor has the ability to promote [which stimulates] dopamine uptake in dopaminergic neurons.

28. (Twice Amended) The nucleic acid sequence of claim 26 encoding a [mature] human glial cell line-derived neurotrophic factor, said nucleic acid sequence comprising nucleotides 105 through 506 of SEQ ID NO:5.

29. The purified and isolated nucleic acid sequence of claim 26 further comprising nucleotides encoding the pre-pro amino acid sequence as set forth in SEQ ID NO:25 amino acid residues 1 through 77.

31. **(Twice Amended)** A purified and isolated nucleic acid sequence encoding a glial cell line-derived neurotrophic factor, wherein said nucleic acid sequence [selected from the group consisting of]:

- (a) encodes a polypeptide comprising [a sequence encoding] the pre-pro form of human glial cell line-derived neurotrophic factor as set forth in SEQ ID NO:25 amino acid residues 1 through 211;
- (b) encodes [sequences which encode] a polypeptide comprising an amino acid sequence which is at least 70% identical [homologous] to an amino acid sequence set forth in SEQ ID NO:25 when four gaps in a length of 100 amino acids may be introduced to assist in that alignment;
- (c) hybridizes under conditions of reduced stringency to a [sequences which hybridize to] nucleic acid sequence [sequences] complementary to those defined in (a) [or (b)]; or [and]
- (d) encodes a polypeptide encoded by a nucleic acid sequence defined in (a), (b) or (c) but differs in codon sequence due to [sequences which, but for] the degeneracy of the genetic code [, would hybridize to a nucleic acid sequence complementary to a sequence defined in (a), (b) or (c)].

34. **(Twice Amended)** The nucleic acid sequence of claim 26 encoding a polypeptide comprising the amino acid sequence of [mature] human glial cell line-derived neurotrophic factor as set forth in SEQ ID NO:6.

42. **(Twice Amended)** A [recombinant DNA] vector comprising expression regulatory elements operatively linked to a nucleic acid sequence of Claim 26.

43. **(Twice Amended)** A host cell transformed or transfected with a nucleic acid sequence [the vector] of claim 26 [42].

44. A recombinant DNA method for the production of glial cell line-derived neurotrophic factor comprising the steps of:

- (a) subcloning a DNA sequence of Claim 26 encoding glial cell line-derived neurotrophic factor into an expression vector which comprises the regulatory elements needed to express the DNA sequence;
  - (b) transforming host cells with said expression vector;
  - (c) culturing the host cells under conditions for amplification of the vector and expression of glial cell line-derived neurotrophic factor; and
  - (d) harvesting the glial cell line-derived neurotrophic factor from the host cell culture.
45. The recombinant DNA method of claim 44 wherein said host cell is an animal cell.
46. **(Twice Amended)** The recombinant DNA method of claim 45 wherein said host cell is a COS [COS-7] cell.
47. **(Amended)** The recombinant DNA method of claim 44 wherein said host cell is a microorganism [bacterial cell].
48. The recombinant DNA method of claim 47 wherein said host cell is *E. coli*.
49. The recombinant DNA method of claim 48 further comprising the step of refolding the harvested glial cell line-derived neurotrophic factor.
50. A recombinant DNA method for the production of glial cell line-derived neurotrophic factor comprising the steps of:
- (a) culturing the host cell of claim 43 under conditions for amplification of the vector and expression of glial cell line-derived neurotrophic factor; and
  - (b) harvesting the glial cell line-derived neurotrophic factor from the host cell culture.
51. The recombinant DNA method of claim 50 wherein said host cell is an animal cell.
52. **(Twice Amended)** The recombinant DNA method of claim 51 wherein said host cell is a COS [COS-7] cell.
53. **(Amended)** The recombinant DNA method of claim 50 wherein said host cell is a microorganism [bacterial cell].

54. The recombinant DNA method of claim 53 wherein said host cell is *E. coli*.
55. The recombinant DNA method of claim 54 further comprising the step of refolding the harvested glial cell line-derived neurotrophic factor.
75. (Amended) A purified and isolated nucleic acid sequence encoding [for use in the recombinant expression of glial cell line-derived neurotrophic factor in a eucaryotic or prokaryotic host cell, wherein said nucleic acid sequence encodes] a polypeptide comprising an amino acid sequence which is at least 90% identical [homologous] to an amino acid sequence of SEQ ID NO:4 or SEQ ID NO:6 when four gaps in a length of 100 amino acids may be introduced to assist in that alignment and which has the ability to promote [stimulates] dopamine uptake in dopaminergic neurons.
76. (Amended) An expression vector comprising [expression regulatory elements operatively linked to] a nucleic acid sequence according to Claim 75.
77. (Amended) A host cell transformed or transfected with a nucleic acid sequence [an expression vector] according to Claim 75 [76].
78. A host cell according to Claim 77, wherein said host cell is a microorganism.
79. (Amended) A host cell according to Claim 77, wherein said host cell is an animal [a mammalian] cell.
80. A host cell according to Claim 77, wherein said cell is suitable for human implantation and wherein said cell expresses and secretes glial cell line-derived neurotrophic factor.
81. A host cell according to Claim 80, wherein said cell is enclosed in a semipermeable membrane suitable for human implantation.
82. A host cell according to Claim 77, wherein said cell is transformed or transfected *ex vivo*.

Ala Glu Thr-Thr Tyr Asp Lys Ile Leu Lys Asn Leu Ser Arg Asn  
 Arg Arg Leu Val Ser Asp Lys Val Gly Gln Ala Cys Cys Arg Pro  
 Ile Ala Phe Asp Asp Asp Leu Ser Phe Leu Asp Asp Asn Leu Val  
 Tyr His Ile Leu Arg Lys His Ser Ala Lys Arg Cys Gly Cys Ile].

89. (Amended) An expression vector comprising [expression regulatory elements operatively linked to] a nucleic acid sequence according to Claim 8.8 [31].
90. (Amended) A host cell transformed or transfected with a nucleic acid sequence [an expression vector] according to Claim 8.8 [89].
91. A host cell according to Claim 90, wherein said host cell is a microorganism.
92. A host cell according to Claim 90, wherein said host cell is an animal cell.
93. A host cell according to Claim 90, wherein said cell is suitable for human implantation and wherein said cell expresses and secretes glial cell line-derived neurotrophic factor.
94. (Amended) A method for the production of glial cell line-derived neurotrophic factor comprising the steps of:
  - (a) culturing a [prokaryotic or eukaryotic] host cell containing [transformed or transfected with] a nucleic acid sequence according to Claim 8.8 [31];
  - (b) maintaining said host cell under conditions allowing the expression of glial cell line-derived neurotrophic factor by said host cell; and
  - (c) optionally, isolating the glial cell line-derived neurotrophic factor expressed by said host cell.
95. (Newly added) A method for the production of glial cell line-derived neurotrophic factor, comprising isolating the glial cell line-derived neurotrophic factor from a host cell containing a nucleic acid sequence according to Claim 26, wherein the glial cell line-derived neurotrophic factor is produced by said host cell.
96. (Newly added) The method according to claim 95, wherein said nucleic acid sequence further comprises a codon encoding an amino-terminal methionine.

83. A host cell according to Claim 43, wherein said cell is transformed or transfected *ex vivo*.

84. A host cell according to Claim 43, wherein said cell is suitable for human implantation and wherein said cell expresses and secretes glial cell line-derived neurotrophic factor.

85. A host cell according to Claim 84, wherein said cell is enclosed in a semipermeable membrane suitable for human implantation.

86. A method for the production of glial cell line-derived neurotrophic factor comprising the steps of:

- (a) culturing a [prokaryotic or eukaryotic] host cell transformed or transfected with a nucleic acid sequence according to Claim 75;
- (b) maintaining said host cell under conditions allowing the expression of glial cell line-derived neurotrophic factor by said host cell; and
- (c) optionally, isolating the glial cell line-derived neurotrophic factor expressed by said host cell.

87. **(Canceled)** A nucleic acid sequence, for use in the recombinant expression of glial cell line-derived neurotrophic factor in a eucaryotic or prokaryotic host cell, encoding a polypeptide which stimulates dopamine uptake in dopaminergic neurons and which is bound by an antibody which binds to an amino acid sequence set forth in SEQ ID NO:4 or SEQ ID NO:6.

88. **(Amended)** A recombinant or isolated [A] nucleic acid sequence [for use in the recombinant expression of glial cell line-derived neurotrophic factor in a prokaryotic host cell, wherein said nucleic acid sequence] encoding a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:4 or SEQ ID NO:6 and further comprising an amino-terminal methionine residue [encodes an amino acid sequence of the formula :

Met Ser Pro Asp Lys Gln Met Ala Val Leu Pro Arg Arg Glu Arg  
Asn Arg Gln Ala Ala Ala Ala Asn Pro Glu Asn Ser Arg Gly Lys  
Gly Arg Arg Gly Gln Arg Gly Lys Asn Arg Gly Cys Val Leu Thr  
Ala Ile His Leu Asn Val Thr Asp Leu Gly Leu Gly Tyr Glu Thr  
Lys Glu Glu Leu Ile Phe Arg Tyr Cys Ser Gly Ser Cys Asp Ala

97. (Newly added) The method according to claim 95, wherein said nucleic acid sequence encodes a polypeptide comprising an amino acid sequence set forth in SEQ ID NO:4 or SEQ ID NO:6 and further comprising an amino-terminal methionine residue.
98. (Newly added) The method according to claim 95, wherein said nucleic acid sequence encodes a polypeptide comprising an amino acid sequence which is at least 90% identical to an amino acid sequence set forth in SEQ ID NO:4 or SEQ ID NO:6 when four gaps in a length of 100 amino acids may be introduced to assist in that alignment.
99. (Newly added) The method according to claim 95, wherein said host cell is an animal cell or microorganism.
100. (Newly added) The method according to claim 99, wherein said host cell is a COS cell or an *E. coli* cell.
101. (Newly added) The method according to claim 95, wherein said host cell expresses and secretes glial cell line-derived neurotrophic factor.
102. (Newly added) The host cell of claim 43, wherein said host cell is an animal cell.
103. (Newly added) The host cell of claim 43, wherein said host cell is a COS cell.
104. (Newly added) The host cell of claim 43, wherein said host cell is a microorganism.
105. (Newly added) The host cell of claim 43, wherein said host cell is a bacterial cell.
106. (Newly added) The host cell of claim 43, wherein said host cell is an *E. coli* cell.
107. (Newly added) A host cell transformed or transfected to express a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:4 or SEQ ID NO:6.